FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 10 to March 16, 2013 (Week 11)

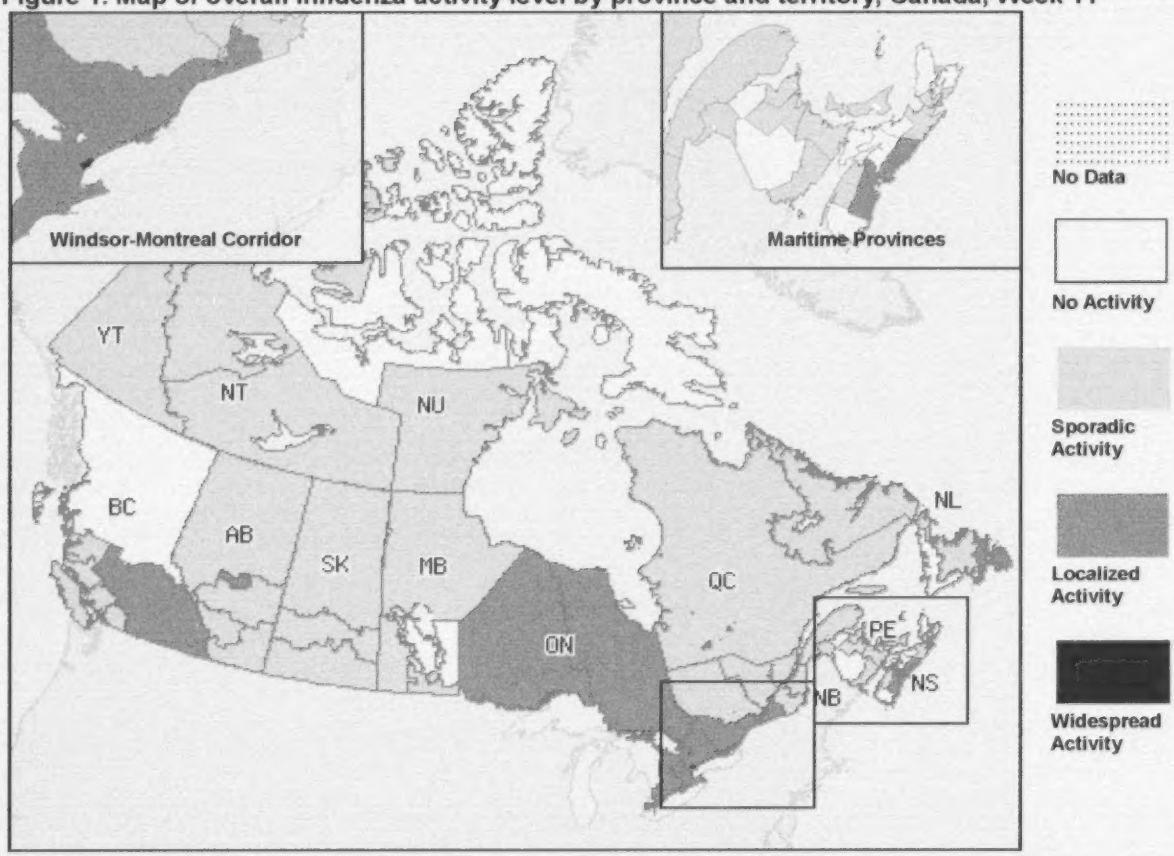
Overall Summary

- Overall detections of influenza continued to decline, however the proportion of influenza B detections increased.
- The proportions of tests positive for other respiratory viruses increased.
- In week 11, 62% of paediatric hospitalizations were associated with influenza B.
- Several indicators, including the number of regions reporting widespread or localized activity, the ILI consultation rate, and the proportion of prescriptions for antivirals decreased in week 11.
- Similar to previous years, older adults (persons aged ≥65 years) are the most affected this season; with 45.0% of laboratory detections to date, 69.2% of adult hospitalizations reported through the PCIRN-SOS network, outbreaks in long-term care facilities, and the highest proportion of antiviral prescriptions.

Influenza Activity (geographic spread) and Outbreaks

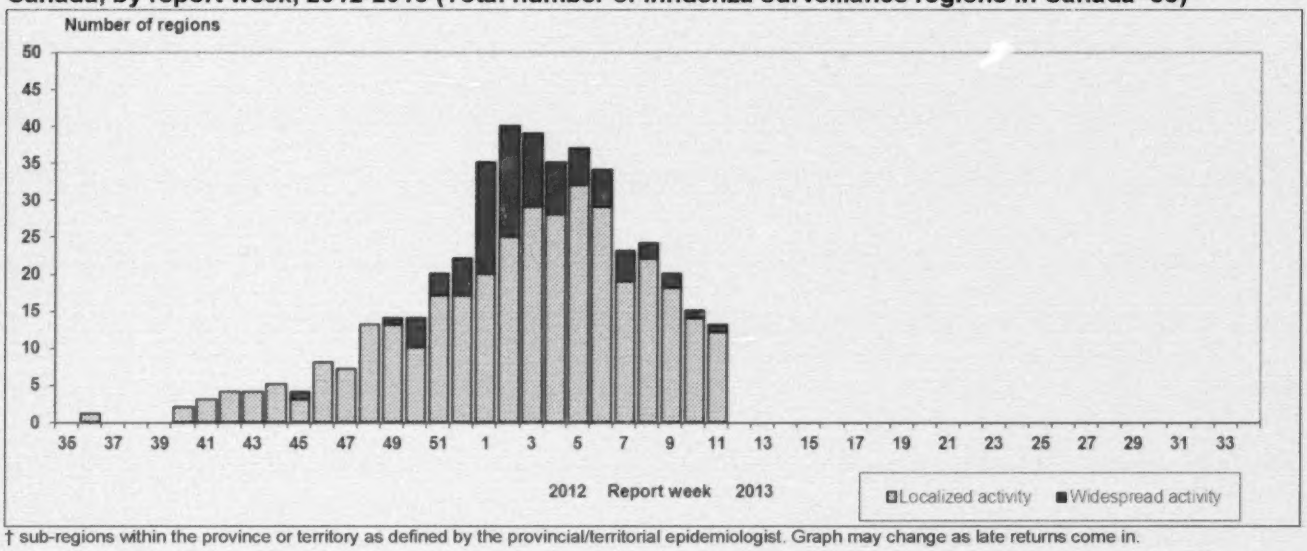
In week 11, one region [in ON] reported widespread activity and 12 regions [in BC(1), AB(1), ON(6), QC(1), NS(2) and NL(1)] reported localized activity. The number of regions reporting widespread or localized activity decreased compared to the previous week and continued to follow the overall decline in influenza/ILI activity from the peak in early January (Figures 1 and 2). Twenty-four new influenza outbreaks were reported: 17 in long-term-care facilities, one in a hospital, one in a school, and five in other facilities or communities (Figure 3).

Figure 1. Map of overall Influenza activity level by province and territory, Canada, Week 11



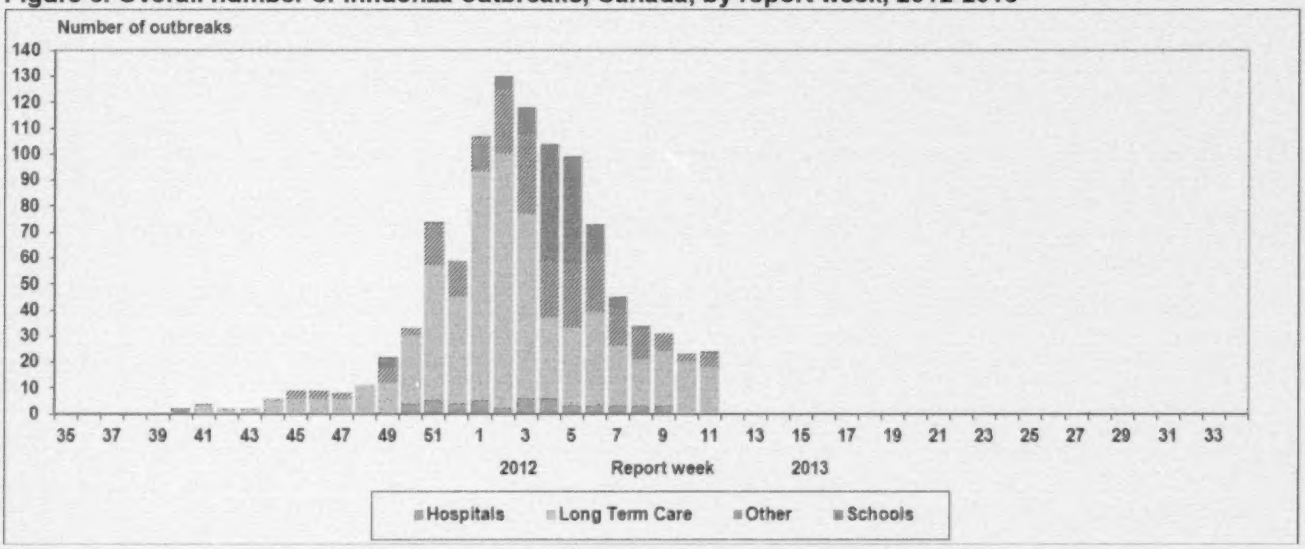
Note: Influenza activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates (see graphs and tables) and reported outbreaks. Please refer to detailed definitions on the last page. For areas where no data is reported, late reports from these provinces and territories will appear on the FluWatch website.

Figure 2. Number of influenza surveillance regions† reporting widespread or localized influenza activity, Canada, by report week, 2012-2013 (Total number of influenza surveillance regions in Canada=58)



† sub-regions within the province or territory as defined by the provincial/territorial epidemiologist. Graph may change as late returns come in.

Figure 3. Overall number of influenza outbreaks, Canada, by report week, 2012-2013



Influenza and Other Respiratory Virus Detections

The percentage of positive influenza tests decreased from 13.1% in week 10 to 12.2% in week 11 (Figure 4). Among the influenza viruses detected in week 10 (n=507), 55.4% were positive for influenza A viruses [of which 22.6% were A(H3), 20.8% were A(H1N1)pdm09, and 56.6% were A(unsubtyped)] (Table 1). The proportion of influenza B detections has increased over the past 8 weeks from 2.1% in week 03 to 55.4% in week 11 (Figure 4). Cumulative influenza virus detections by type/subtype to date are as follows: 93.0% influenza A [34.9% A(H3), 4.0% A(H1N1)pdm09 and 61.1% A(unsubtyped)] and 7.0% influenza B (Table 1).

Detailed information on age and type/subtype has been received for 22,036 cases to date this season (Table 2). The proportion of cases by age group is as follows: 13.7% < 5 years; 8.9% between 5-19 years; 15.6% between 20-44 years; 16.8% between 45-64 years of age; 45.0% ≥ 65 years.

The percentage of tests positive decreased for RSV, from 17.6% in week 10 to 15.4% in week 11. The percentage of positive tests increased for all other viruses: rhinovirus (9.4%), hMPV (5.2%), coronavirus (4.2%), parainfluenza (4.1%) and adenovirus (1.9%) (Figure 5)*.

* For more details, see the weekly Respiratory Virus Detections in Canada Report.

Table 1. Weekly and Cumulative numbers of positive influenza specimens by Provincial Laboratories, Canada, 2012-2013

Reporting provinces	Weekly (March 10 to March 16, 2013)						Cumulative (August 26, 2012 to March 16, 2013)					
	Influenza A					B	Influenza A					B
	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total	A Total	A(H1)	A(H3)	Pand H1N1	A (UnS)*	Total
BC	32	0	15	12	5	27	1872	0	1435	200	237	299
AB	21	0	8	10	3	47	2276	0	1741	391	144	370
SK	16	0	6	8	2	15	809	0	474	59	276	128
MB	7	0	0	0	7	3	611	0	78	8	525	50
ON	68	0	20	16	32	50	8070	0	3743	294	4033	391
QC	43	0	0	1	42	136	9671	0	546	30	9095	712
NB	9	0	0	0	9	1	1804	0	757	50	997	10
NS	23	0	0	0	23	0	335	0	165	5	165	3
PE	2	0	2	0	0	0	104	0	73	3	28	1
NL	5	0	0	0	5	2	701	0	152	0	549	9
Canada	**226**	**0**	**51**	**47**	**128**	**281**	**26253**	**0**	**9164**	**1040**	**16049**	**1973**

*Unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available. Specimens from NT, YT, and NU are sent to reference laboratories in other provinces. Note: Weekly data is based on week of positive lab detection. Cumulative data includes updates to previous weeks; due to reporting delays, the sum of weekly report totals do not add up to cumulative totals.

Table 2. Weekly & Cumulative numbers of positive influenza specimens by age groups reported through case-based laboratory reporting, Canada, 2012-2013*

Age groups	Weekly (March 10 to March 16, 2013)					Cumulative (Aug. 26, 2012 to March 16, 2013)				
	Influenza A				B	Influenza A				B
	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total	A Total	Pandemic H1N1	A/H3N2	A unsubtyped	Total
<5	10	2	0	8	36	2669	188	926	1555	348
5-19	10	4	0	6	58	1470	69	669	732	499
20-44	19	6	3	10	26	3140	301	1268	1571	289
45-64	22	7	4	11	36	3439	284	1261	1894	272
65+	56	2	19	35	28	9617	98	3760	5759	293
Unknown	0	0	0	0	0	165	19	144	2	0
Total	**117**	**21**	**26**	**70**	**184**	**20500**	**959**	**8028**	**11513**	**1701**

*Please note that this table reflects the number of specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Delays in the reporting of data may cause data to change retrospectively.

Figure 4. Influenza tests reported and percentage of tests positive, Canada, by report week, 2012-2013

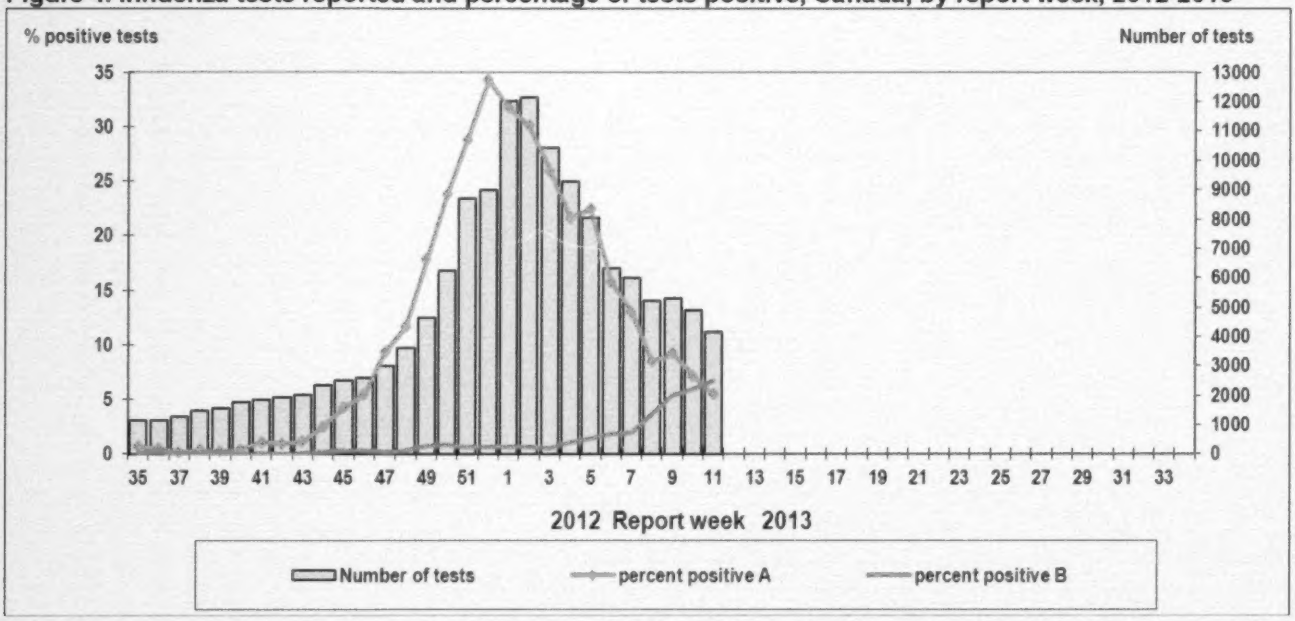
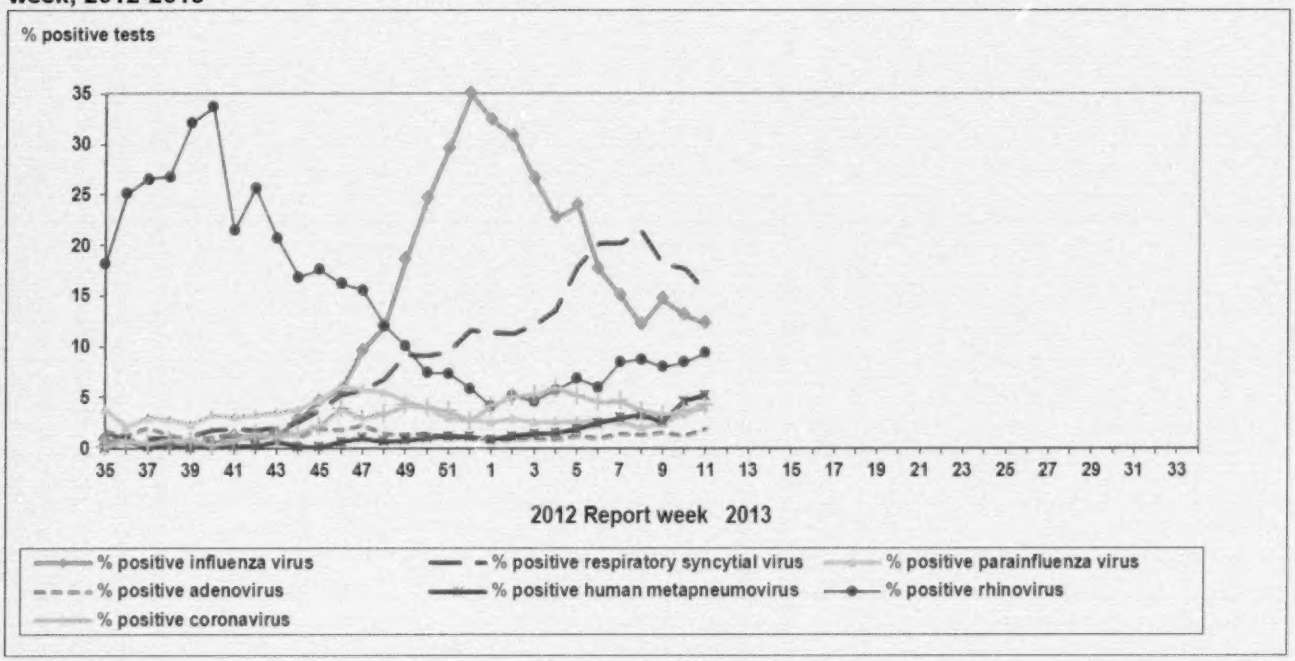


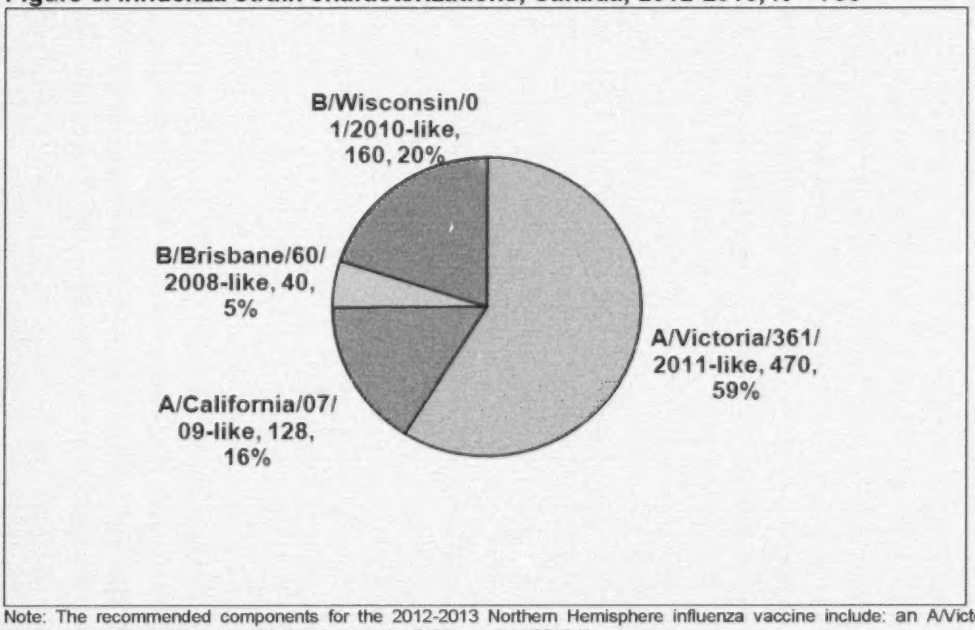
Figure 5. Percent positive influenza tests, compared to other respiratory viruses, Canada, by reporting week, 2012-2013



Influenza Strain Characterizations

During the 2012-13 season, the National Microbiology Laboratory (NML) has antigenically characterized 798 influenza viruses. The 470 influenza A(H3N2) viruses were antigenically similar to the vaccine strain A/Victoria/361/2011 and the 128 A(H1N1)pdm09 viruses were antigenically similar to the vaccine strain A/California/07/09. Among the influenza B viruses, 160 were antigenically similar to the vaccine strain B/Wisconsin/01/2010 (Yamagata lineage) and 40 were similar to B/Brisbane/60/2008 (Victoria lineage; component of the 2011-2012 seasonal influenza vaccine) (Figure 6).

Figure 6. Influenza strain characterizations, Canada, 2012-2013, N = 798



Note: The recommended components for the 2012-2013 Northern Hemisphere influenza vaccine include: an A/Victoria/361/2011 (H3N2)-like virus; an A/California/7/2009 (H1N1)pdm09-like virus; and a B/Wisconsin/1/2010-like virus.

Antiviral Resistance

During the 2012-13 season, NML has tested 730 influenza viruses for resistance to oseltamivir, and 727 influenza viruses for resistance to zanamivir. All viruses tested were sensitive to oseltamivir and zanamivir. A total of 886 influenza A viruses were tested for amantadine resistance and all were resistant (Table 3).

Table 3. Antiviral resistance by influenza virus type and subtype, Canada, 2012-2013

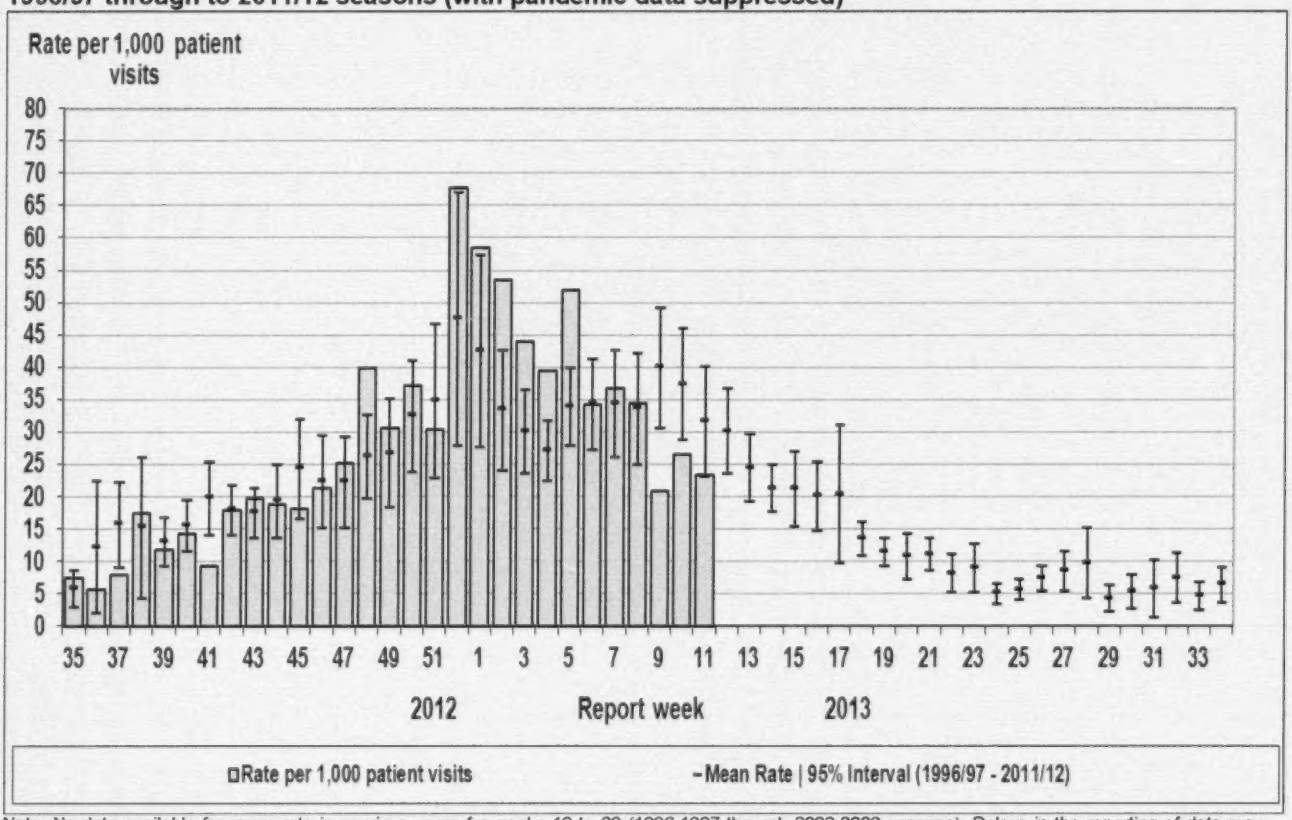
Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	462	0	461	0	772	772 (100%)
A (H1N1)	106	0	104	0	114	114
B	162	0	162	0	NA*	NA*
TOTAL	730	0	727	0	886	886 (100%)

* NA – not applicable

Influenza-like Illness Consultation Rate

The national influenza-like-illness (ILI) consultation rate decreased from 26.5 ILI consultations per 1,000 patient visits in week 10, to 23.2 in week 11 and is within the expected range (Figure 7). In week 11, the highest consultation rate was observed in children less than 5 years of age (68.6/1,000).

Figure 7. Influenza-like illness (ILI) consultation rates, Canada, by report week, 2012-2013 compared to 1996/97 through to 2011/12 seasons (with pandemic data suppressed)



Note: No data available for mean rate in previous years for weeks 19 to 39 (1996-1997 through 2002-2003 seasons). Delays in the reporting of data may cause data to change retrospectively.

Pharmacy Surveillance

The Canadian antiviral prescription rate decreased from 93.5 antiviral prescriptions per 100,000 new prescriptions dispensed in week 10 to 47.2/100,000 in week 11; a rate similar to that observed at the end of November 2012 (week 47). The antiviral prescription rate decreased for children, adults and seniors, and was stable for infants, but this rate was the lowest of all age-groups at 11.7/100,000. The highest rate continued to be observed for seniors ≥65 years of age at 94.7/100,000.

Note: Pharmacy sales data are provided to the Public Health Agency of Canada by Rx Canada Inc. and sourced from major retail drug chains representing over 3,000 stores nationwide (excluding Nunavut) in 85% of Health Regions. Data provided include the number of new antiviral prescriptions (for Tamiflu and Relenza) and the total number of new prescriptions dispensed by Province/Territory and age group.

Severe Respiratory Illness Surveillance

Paediatric Influenza Hospitalizations and Deaths (IMPACT)

In week 11, 21 new laboratory-confirmed influenza-associated paediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, compared to 22 in week 10. Among the cases reported in week 11, 62% (13) were identified with influenza B, 14% (3) with A(H1N1)pdm09 and 24% (5) with A(unsubtyped). For the third week in a row, the number of influenza B cases exceeded the number of influenza A cases, a reversal of the pattern seen earlier in the season. The age distribution is as follows: 2 cases (9.5%) under 6 months of age, 7 (33.3%) between 6-23 months, 3 (14.3%) 2-4 years of age, 7 (33.3%) 5-9 years of age, and 2 (9.5%) 10-16 years of age. One admission to an Intensive Care Unit (ICU) was reported during week 11, a child 2-4 years of age with influenza B.

Since the start of the 2012-13 season, a total of 713 influenza-associated paediatric hospitalizations have been reported by the IMPACT network: 605 (84.9%) with influenza A [of which 112 (18.5%) were A(H3N2), 19 (3.1%) were A(H1N1)pdm09 and the remaining 474 were A(unsubtyped)]; and 108 (15.1%) with influenza B. The distribution of cases by age group is as follows: 140 (19.6%) <6 months of age; 169 (23.7%) age 6-23 months; 208 (29.2%) age 2-4 years; 135 (18.9%) age 5-9 years; and 61 (8.6%) age 10-16 years. Sixty-one of the 713 cases (8.6%) were admitted to the ICU. No deaths have been reported to date.

Note: The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated paediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths (PCIRN)

In week 11, 21 new laboratory-confirmed influenza-associated adult (≥16 years of age) hospitalizations were reported by the PHAC/CIHR Influenza Research Network (PCIRN) Serious Outcomes Surveillance (SOS) network. Ninety-one percent (19) of the hospitalizations were cases of influenza A. Fourteen cases were ≥65 years of age, six were 45-64 years of age, and one was 20-44 years of age. One ICU admission was reported during the current week, in a person ≥65 years of age with influenza A(unsubtyped). Three deaths were reported: all three with influenza A(unsubtyped), two ≥65 years and one 20-44 years of age.

From week 45 to week 11, 1,538 influenza-associated adult hospitalizations have been reported by the PCIRN-SOS network: 1,441 (93.7%) with influenza A [of which 206 were A(H3N2), 12 were A(H1N1)pdm09, and 1,223 were A(unsubtyped)]; 52 (3.4%) with influenza B, and the type has not been reported for 45 cases. The age distribution of hospitalizations is as follows: 1064 (69.2%) were ≥65 years of age, 305 (19.8%) were 45-64 years, 161 (10.5%) were 20-44 years, and 8 (0.5%) were <20 years of age. ICU admission was required for 161 hospitalizations; the majority of which were adults ≥65 years of age (100; 62.1%). Of the ICU admissions, 60 (37.3%) had at least one co-morbidity, two (1.2%) had no co-morbidities, and 99 had no information to date. A total of 87 deaths have been reported: 15 with influenza A(H3N2), 67 with influenza A(unsubtyped), 4 with influenza B, and one untyped. More than 80% of the deaths (73/87) were in adults ≥65 years of age, 11 (12.6%) were adults 45-64 years of age, and 3 (3.4%) were 20-44 years of age. Thirty-six deaths occurred in individuals who had at least one co-morbidity. Detailed clinical information on co-morbidities is not known for the remaining cases.

Note: The number of hospitalizations reported through PCIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Provincial/Territorial Influenza Hospitalizations and Deaths (Aggregate Surveillance System)

In week 11, 95 laboratory-confirmed influenza-associated hospitalizations were reported from participating provinces and territories*. The majority of cases were influenza A (61; 64.2%), predominantly A(H3). The highest proportion of hospitalisations continued to be adults ≥65 years of age (40.0%), followed by children 0-4 years of age (25.3%). Of the 37 cases with available data, seven were admitted to the ICU - one child aged 0-4 years; one aged 5-14 years; three adults aged 45-64 years; and two aged ≥65 years. Two deaths were reported: both adults aged ≥65 years; one influenza B and one A(H3). It is important to note that the cause of death does not have to be attributable to influenza,

a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases. Data were not received for the Yukon Territories in week 11.

To date this season 3,944 influenza-associated hospitalizations have been reported; of which 95.0% have been influenza A, predominantly A(H3). The cumulative proportion of hospitalizations in cases with influenza B has increased from 1.6% in week 01, to 5.0% in week 11; which follows the trend of influenza B detections in Canada this season. Age information was available for 3,941 cases, and the age distribution is as follows: 2,190 (55.6%) were ≥65 years; 663 (16.8%) 45-64 years; 350 (8.9%) 20-44 years; 37 (0.9%) 15-19 years; 152 (3.9%) 5-14 years and 549 (13.9%) 0-4 years of age. Among the 1,052 cases with available data, there have been 168 (16.0%) hospitalisations for which admission to an ICU was required; the highest proportions being adults between 45-64 years of age and ≥65 years of age (36.9% and 35.1% respectively). To date, 271 deaths have been reported: 225 (83.0%) were adults ≥65 years of age, 29 (10.7%) were adults between 45-64 years of age; 11 (4.1%) were adults between 20-44 years of age, one child between 5-14 years of age and 5 (1.9%) between 0-4 years of age. It is important to note that the cause of death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting. Detailed clinical information (e.g. underlying medical conditions) is not known for these cases.

Note*: The number of new influenza-associated hospitalizations and deaths reported by the Aggregate Surveillance System each week may be overestimated, as it may include retrospective updates to data from Ontario for previous weeks. These data may also include cases reported by the IMPACT and PCIRN networks. Influenza-associated hospitalizations are not reported to PHAC by the following Provinces and Territory: BC, NU, QC, NS, and NB. Only hospitalizations that require intensive medical care are reported by Saskatchewan. ICU admissions are not reported in Ontario.

International Influenza Updates

WHO: The most recent WHO surveillance report (15 March 2013) summarizes global influenza surveillance data from week 09 (February 24 to March 2, 2013). In North America, the peak of influenza activity in Mexico occurred about 2 weeks after the early-January peak in Canada and the United States. Although the United States reported a greater proportion of influenza B this season, both Canada and the US have seen an increase in circulation of influenza B in the later part of the season. In the eastern Mediterranean region, the peak of influenza activity occurred in early February with a predominance of A(H1N1)pdm09. In northern Africa, the peak of influenza activity has not yet been observed; both A(H1N1)pdm09 and influenza B continue to circulate. Influenza activity continued to decrease in temperate regions of Asia, although activity may not yet have peaked in the Republic of Korea. Influenza A(H3N2) has been the most commonly detected virus in northern Asia although northern China reported an increasing proportion of A(H1N1)pdm09 in recent weeks. In tropical regions of Asia, low-level co-circulation of A(H3N2) and influenza B were reported, although India and Sri Lanka also reported circulation of A(H1N1)pdm09. In Central America and the Caribbean, influenza activity was stable or decreasing from the peaks in late summer. Countries in Tropical South America reported low numbers of influenza detections. Most countries in tropical areas of Central Africa reported low-level influenza circulation, except Cameroon and Madagascar which reported continued circulation of influenza B.
World Health Organization influenza update

United States: During week 11, influenza activity remained high, but decreased in most areas. Seven states reported widespread influenza activity, Puerto Rico and 8 states reported regional influenza activity, and 26 states reported local activity. The national percentage of outpatient visits for ILI was 2.2% which is at the national baseline, continuing the decline observed over the past 8 weeks. Three of 10 regions reported ILI at or above region-specific baseline levels. One state reported high ILI activity and five states reported moderate activity in week 11. The percentage of deaths due to pneumonia and influenza has been above the epidemic threshold since week 01; in week 11 it was 7.6%, the same as in week 10. The proportion of tests positive for influenza viruses declined to 16.3% in week 11. The number of influenza B detections has been relatively stable over recent weeks, despite a decline in the total number of specimens positive for influenza. Of the positive influenza detections in week 11, 71.9% were positive for influenza B viruses. Since October 1, 2012, the CDC has antigenically characterized 1,695 influenza viruses. Among influenza A(H3N2) viruses, 1,008 (99.6%) were A/Victoria/361/2011-like, and 4 (0.4%) showed reduced titers to A/Victoria/361/2011 antiserum. Among influenza A(H1N1)pdm09 viruses, 138 (97.9%) were A/California/7/2009-like, and 3 (2.1%) showed reduced titers to A/California/7/2009-like antiserum. Among influenza B viruses, 383 (70.7%) were B/Wisconsin/01/2010-like belonging to the Yamagata lineage of viruses; and 159 (29.3%) to the B/Victoria lineage. Two (0.5%) A(H1N1)pdm09 and one (0.1%) A(H3N2) oseltamivir-resistant viruses have been reported to date this season. Among the 11,307 influenza-associated hospitalizations reported to date this season, 83.0% were associated with influenza A of which 96.5% were A(H3N2), and 51% were among adults ≥65 years. Approximately 44% of hospitalized children had no identified underlying medical conditions. A total of 105 influenza-associated paediatric deaths have been reported to date this season, 52 with influenza A, 51 with influenza B and one with both influenza A and B.
Centers for Disease Control and Prevention seasonal influenza report

Europe: In week 11, ILI and acute respiratory illness (ARI) consultation rates declined in most parts of the region. Most countries reported medium intensity of ILI/ARI activity, although some countries in the eastern part of the region reported an increasing trend. The percentage of sentinel specimens positive for influenza has been decreasing since

week 07, to 40% in week 11. Since the beginning of the season, 65% of detections from sentinel and non-sentinel sources were influenza A [70% A(H1N1)pdm09 and 30% A(H3N2)] and 34% were influenza B. In week 11, influenza A continued to be predominant in eastern and central Europe as well as in Greece, Ireland and the United Kingdom; influenza B or co-circulation of influenza A and B was reported in countries of the northern and western parts of the region. Among the 442 A(H1N1)pdm09 viruses tested for resistance to oseltamivir, 9 were found to contain the H275Y mutation: three were specimens from hospitalized and outpatients not exposed to oseltamivir, while the other six viruses were detected in hospitalized immunocompromised patients receiving oseltamivir treatment. The number of hospitalizations for severe acute respiratory illness decreased slightly, although some countries in eastern Europe reported increases in the proportion of SARI cases positive for influenza in keeping with increases in ILI/ARI consultation rates. At the beginning of the season, most sentinel SARI hospitalizations occurred in children 0-4 years of age. Over recent weeks, there has been an increase in the proportion of SARI hospitalizations in older children and adults.
EuroFlu weekly electronic bulletin

Emerging Respiratory Pathogens

Human Avian Influenza
No new WHO report of Influenza at the Human-Animal Interface has been published since 12 March 2013.
WHO Influenza at the human-animal interface

Human Swine Influenza
No new human cases of infection with swine influenza viruses or variants were reported in week 11.
Centers for Disease Control and Prevention seasonal influenza report

Novel Coronavirus
No new cases of novel coronavirus (nCoV) have been reported since March 12, 2013. Since April 2012, 15 laboratory-confirmed cases of nCoV have been identified, including 9 deaths.
WHO – Coronavirus infections

FluWatch reports include data and information from the following sources: laboratory reports of positive influenza tests in Canada (National Microbiology Laboratory), sentinel physician reporting of influenza-like illness (ILI), provincial/territorial assessment of influenza activity based on various indicators, including laboratory surveillance, ILI reporting, and outbreaks, influenza-associated paediatric and adult hospitalizations, antiviral sales in Canada, and WHO and other international reports of influenza activity.

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

ILI definition for the 2012-2013 season

ILI in the general population: Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

Definitions of ILI/influenza outbreaks for the 2012-2013 season

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Institutional outbreaks should be reported within 24 hours of identification. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Influenza Activity Levels Definition for the 2012-2013 season

Influenza Regional Activity levels are defined as:

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = Localized: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region†**

4 = Widespread: (1) evidence of increased ILI* and
(2) lab confirmed influenza detection(s) together with
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region†**

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

* More than just sporadic as determined by the provincial/territorial epidemiologist.

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Public Health Agency website at the following address: http://www.phac-aspc.gc.ca/fluwatch/index.html. Ce rapport est disponible dans les deux langues officielles.